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***Arachnophora longa* sp. nov., a freshwater hyphomycete from far north Queensland, Australia**

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ABSTRACT—*Arachnophora longa*, collected from submerged wood in far north Queensland, Australia, is described and illustrated as a new species. It is distinguished from other members of the genus by possessing macroconidia with long appendages (“arms”).

KEY WORDS—anamorphic fungi, biodiversity, dematiaceous hyphomycete, lignicolous fungi, taxonomy

Introduction

During a survey of freshwater fungi on wood in streams in far north Queensland, a distinctive fungus was collected on submerged wood. The conidiogenesis and morphology of the conidia place this fungus in the genus *Arachnophora* Hennebert (Hennebert 1963). However, the fungus shows clear differences from previously described *Arachnophora* species and is therefore described as new to science.

Materials & methods

Samples of submerged wood less than 5 cm in diameter were collected from Oliver Creek, north Queensland, placed into sealed plastic bags, and returned to the laboratory. The collection site had a rocky base with shallow, running water and thick native riparian vegetation. Samples were then incubated in sterile plastic containers and regularly examined for fungi using a Leica MZ7s dissecting microscope. When noted, fungi were photographed, described, and transferred to a microscope slide with

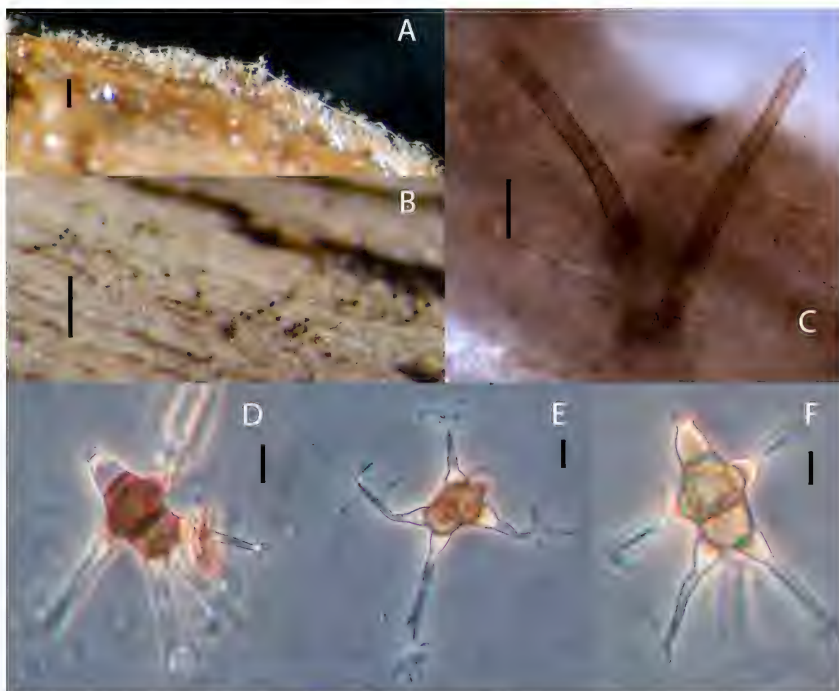


FIG. 1. *Arachnophora longa* (holotype, BRI AQ522463). A: Colonies on natural substrate while fresh. B: Colonies on natural substrate after drying. C: Conidiophores. D–F: Macroconidia with microconidial synanamorph. Scale bars: A, B = 200 µm; C–F = 10 µm.

a drop of distilled water and cover slip. This slide was examined using either a Leica DMLS compound microscope with phase contrast or a Nikon Eclipse Ni with difference interference contrast. Photographs were taken using either a Sony RX-100 or Lumenera Infinity 3 camera. Drawings were made with the assistance of a Nikon Y-IDT drawing tube at 100×.

Taxonomy

Arachnophora longa Fryar & K.D. Hyde, **sp. nov.**

FIGS 1, 2

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Differs from *Arachnophora combuensis* by its longer macroconidial arms and its slightly larger microconidia; and from *A. polyradiata* by its fewer but longer macroconidial arms.

TYPE: Australia, Queensland, Cape Tribulation, Oliver Creek, 16.137°S 145.440°E, on submerged wood, 7 Oct 2015, collector S. Fryar (**Holotype**, BRI AQ522463).

ETYMOLOGY: Latin *longa*, referring to the relatively long macroconidial arms.

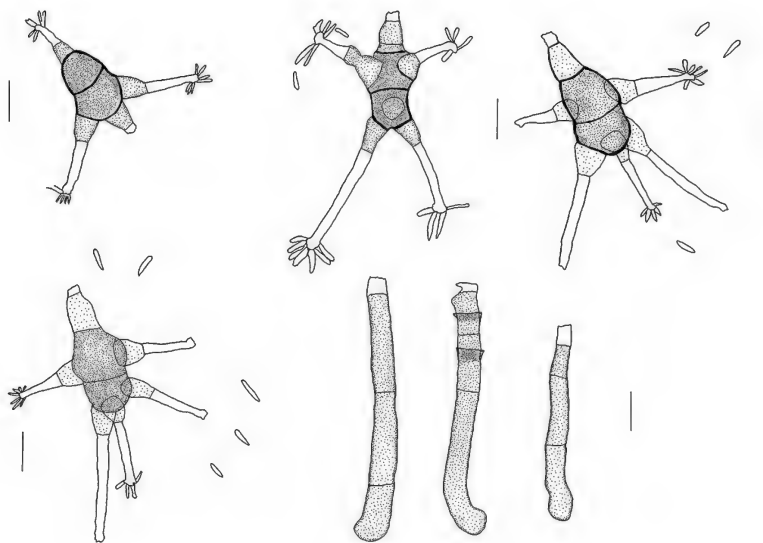


FIG. 2. *Arachnophora longa* (holotype, BRI AQ522463).
Conidiophores, macroconidia, and microconidia. Scale bars = 10 μ m.

CONIDIOPHORES macronematous, mononematous, brown, erect, unbranched, cylindrical, smooth, 1–4-septate, no constrictions at the septa, with percurrent proliferation, slightly bulbous at the base, single, $46\text{--}102 \times 5\text{--}7.5 \mu\text{m}$. CONIDIOGENOUS CELLS monoblastic, integrated, terminal, cylindrical, smooth, pale brown to hyaline. MACROCONIDIA staurosporous, acrogenous, solitary, brown, dry, smooth, complex, composed of [i] a basal cell that is obconical, truncate, pale brown, and with a minute basal frill as a result of rhexolytic dehiscence and [ii] an irregular two-celled central body of $17\text{--}23 \times 11\text{--}19 \mu\text{m}$; each central cell giving rise to 1–3 brown to pale brown lateral cells, $6\text{--}9 \times 5\text{--}9 \mu\text{m}$, each in turn giving rise to a single fertile, tapering, hyaline arm, $16\text{--}43 \times 2\text{--}3 \mu\text{m}$, usually aseptate (occasionally 1-septate), 3–5 arms per macroconidium. SYNANAMORPH: the apical cell of each macroconidial arm producing hyaline, aseptate, $5\text{--}10 \times 1 \mu\text{m}$, fusiform to clavate microconidia with minute denticles at their tip.

COMMENTS – *Arachnophora* was established by Hennebert (1963) for the type species, *A. fagicola*, growing on decaying cupules of *Fagus sylvatica*. Currently, there are ten species recognized in the genus. Of these species, *A. longa* most

resembles *A. polyradiata*, which differs by its longer ($\leq 150\ \mu\text{m}$) conidiophores and more numerous (5–7) and shorter (15–20 μm) macroconidial arms (Mercado Sierra & Castañeda Ruíz 1984, Castañeda Ruíz & al. 1997). Three species—*A. fagicola*, *A. pulneyensis*, *A. uberisporoides*—do not produce a synanamorph (Hennebert 1963, Subramanian & Bhat 1987, Castañeda Ruiz & al. 1997) and are therefore distinct from *A. longa*. Macroconidia of *A. combuensis*, *A. crassa*, *A. dinghuensis*, *A. goanensis*, *A. hughesii*, and *A. polybrachiata* have fewer and shorter arms than *A. longa*, among other distinguishing characters (Révay & Gönczöl 1989, Castañeda Ruiz & Guarro 1999, Pratibha & al. 2011, Leão-Ferreira & al. 2013, Ma & al. 2014, Monteiro & al. 2014).

Arachnophora species are usually found on decaying leaves, wood, bark, or pods on forest floors (e.g., Kirk 1981, Matsushima 1993, Castañeda Ruiz & al. 1997, Pratibha & al. 2011, Ma & al. 2014). However, there have previously been reports of this genus on submerged wood in freshwater habitats (Tsui & al. 2000, Monteiro & al. 2014).

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